

REMARKS

The present application contains claims 1-214, the status of which is as follows:

- (a) Claims 7 and 11-15 are as originally filed.
 - (b) Claims 6, 55-56, 60-64, 151, 155, 161-164, 166-168, and 172-177 were previously amended.
 - (c) Claims 10, 59, and 205-206 have been currently amended.
 - (d) Claims 152-154, 156-160, 165, and 169-171 were withdrawn in response to a restriction requirement.
 - (e) Claims 1-5, 8, 9, 16-54, 57-58, 65-150, and 178-204 were previously canceled.
 - (f) Claims 207-214 are new.
- No new matter has been added. Reconsideration is respectfully requested.

Allowance of claims 6, 7, 55, and 56

Applicant again thanks the Examiner for allowing claims 6, 7, 55, and 56 in the official actions dated October 19, 2005, July 6, 2006, and June 20, 2007.

Rejections under 35 U.S.C. 102(b) over Whigham et al.

Claims 205 and 206 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,821,724 to Whigham et al. While not necessarily agreeing with this rejection, Applicant has amended these claims to recite that the single extended pulse is "either cathodic or anodic." In contrast, the 8.5 ms portion of Whigham's signal cited by the Examiner (which includes the 0.5 ms portion of the signal that initiates action potential propagation and the 8 ms "postcharge" period) includes both a cathodic portion (the stimulus period) and an anodic portion (the postcharge period). The opposite polarity of the postcharge period is a fundamental feature of Whigham's technique, as Whigham indicates in the first paragraph summarizing the invention: "A triphasic

stimulus is generated, with the first and third phases being of one polarity and the second being of the opposite polarity" (col. 2, lines 37-39). Applicant further respectfully submits that it would not be obvious to modify the 8.5 ms signal of Whigham to be entirely cathodic or anodic, because to do so would destroy the intended function of the postcharge period, namely "to drive a current through the capacitor and the stimulating electrode until the voltage across the capacitor equals the starting quiescent voltage" (col. 2, lines 44-47). Clearly, the postcharge period would not achieve its discharge purpose if it were of the same polarity as the stimulation period.

Support for the above-mentioned amendment is provided in the specification as filed by at the least the following: "Other signals may also be used, however, for example: a single extended pulse, either cathodic or anodic; . . ." (p. 24, first full paragraph).

Rejections under 35 U.S.C. 102(b) and 103(a) over Saito

Claims 10-15, 59-64, 151, 155, and 177 were rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Application Publication JP62-275471 to Saito. Claims 164, 166, 172-174, and 176 were rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Saito. While not necessarily agreeing with this rejection, Applicant has amended independent claims 10 and 59 to further recite that the signal has an amplitude "that is at least three times as great as a threshold for pacing the heart." In contrast, the pulses of Fig. 4 of Saito are shown as having conventional pacing amplitude (compare Fig. 4 with Fig. 1, which is described on p. 2 as showing conventional pacing pulses). Saito neither teaches nor suggests the high-amplitude pulses now recited in claims 10 and 59.

Support for these amendments is provided in the specification as filed by at least the following: "Preferably, the electrical current applied in each pulse is substantially

greater than twice the threshold required for pacing, and more preferably, greater than three times the threshold, although still substantially less than a level that would be required for cardioversion or defibrillation" (p. 8, first paragraph). Applicant notes that this passage appears in the second full paragraph of the Summary of the Invention, which indicates that at the time of filing Applicant considered this high amplitude to be an important feature of some embodiments of the invention. This feature also was recited in claims 8 and 56 as originally filed, which depended from claims 1 and 49, respectively, upon which pending independent claims 10 and 59 are based (the features of claims 1 and 49 were imported into claims 10 and 59, respectively, in an amendment submitted in response to the office action dated February 24, 2005).

Given the suggested allowability of claims 10 and 59, dependent claims 10-15, 59-64, 151, 155, 166, 172-174, and 176-177 are also in a condition for allowance, being of narrower scope than the allowable independent claims from which they respectively depend.

New claims

Claims 207-214 are new. Claims 207 and 208 find support in the specification as filed at least by the following: "In some preferred embodiments of the present invention, the extended pacing signal comprises a train of biphasic pulses. The inventors have observed that application of a train of two or more biphasic pulses, each pulse preferably having a duration of at least 5 ms, and more preferably at least 8-10 ms, substantially enhances the effect of increased contractility and cardiac output" (last paragraph on p. 12).

Claims 209 and 212 find support in the specification as filed at least by the following: "Preferably, the electrical current applied in each pulse is substantially greater than twice the threshold required for pacing, and more preferably, greater than three

times the threshold, although still substantially less than a level that would be required for cardioversion or defibrillation" (p. 8, first paragraph). Claims 210-211 and 213-214 recite the alternative polarities recited in claims 205 and 206, respectively.

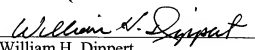
Withdrawal of restriction requirement

Claims 152-154, 156-160, 165, and 169-171 were withdrawn in response to a restriction requirement. Given the suggested patentability of independent claims 10 and 59, from which these non-elected claims directly or indirectly depend, Applicant respectfully submits that the restriction requirement with respect to these withdrawn claims should be withdrawn (MPEP 821.04).

Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, Applicant respectfully submits that all of the claims in the present application are now in order for allowance. Notice to this effect is respectfully requested.

Respectfully submitted,

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